

DRIFTON

THE SCIENCE OF DISPENSING

Drifton High Precision Liquid Dispenser

Operation Manual (GB)

2004-DE	
2004-DT	
2004-DB	



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Introduction

You have selected a reliable, high quality, high precision dispenser from Drifton A/S. The dispenser will provide you with years of trouble-free, productive service. This operation manual will help you maximize the usefulness of your new dispenser.

Please spend a few minutes to become familiar with the controls and features. Follow our recommended testing procedures. Review the helpful information we have included, which is based on more years of industrial dispensing experience.

Most questions you will have are answered in this Operation Manual. However, if you need assistance, please do not hesitate to contact Drifton A/S at telephone 0045-5372 8090 or info@drifton.dk or an authorized distributor

Our goal is to build not only the finest equipment and components, but also to build long-term customer relationships founded on superb quality, service, value and trust.

Drifton A/S
The science of dispensing

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Product Safety Statement

Intended User

Use of Drifton equipment in ways other than those described in the documentation supplied with the equipment may result in injury to persons or damage to property. Some examples of unintended use of equipment include:

- Using incompatible materials
- Making unauthorized modifications
- Removing or bypassing safety guards or interlocks
- Using incompatible or damaged parts
- Using unapproved auxiliary equipment
- Operating equipment in excess of maximum ratings
- Operating equipment in an explosive atmosphere

Regulations and Approvals

Make sure all equipment is rated and approved for the environment in which it is used. Any approvals obtained for Drifton equipment will be voided if instructions for installation, operation and service are not followed.

Qualified Personnel

Equipment owners are responsible for making sure that Drifton equipment is installed, operated and serviced by qualified personnel. Qualified personnel are those employees or contractors who are trained to safely perform their assigned tasks. They are familiar with all relevant safety rules and regulations and are physically capable of performing their assigned tasks.

Personal Safety

To prevent injury, follow these instructions:

- Do not operate or service equipment unless you are qualified.
- Keep clear of moving equipment. Before adjusting or servicing moving equipment, shut off the power supply and wait until the equipment comes to a complete stop. Lock out power and secure the equipment to prevent unexpected movement.
- Make sure dispensing areas and other work areas are adequately ventilated.
- Know where emergency stop buttons, shutoff valves and fire extinguishers are located.
- Clean – Remove all electrical and mechanical connections to unit. Apply a small amount of light detergent onto a moist cloth and wipe surface of unit lightly, cleaning any stains or spilled adhesive.
- Maintain – Only use clean dry air and regulated power supply for the unit. Equipment does not require any other regular maintenance.
- Test – Verify operation of features and performance of equipment using the ‘Testing and installation’ sections within this Operation manual. If necessary, refer to the ‘Trouble Shooting Guide’ elsewhere in this user guide. A faulty or defective unit should be returned to Drifton or representative for refurbishment.

Caution: Use replacement parts that are designed for use with the original equipment so that our dispenser will better work for you.

Started

First: Unpack and see the pack list enclosed with the Dispenser, and then check all items. If there is any discrepancy, please call us immediately.

Second: Power and compressed plant air should be available where the dispenser is to be set up. Be certain your plant air is properly filtered and dry and a regulated, constant air pressure is supplied to the dispenser.

We have organized this operation manual to provide setup and testing procedures for the High precision Series dispensers.

Please see the content for the different dispensers.

Next: We will tell you how to dispensing low viscosity fluid using the vacuum control and how to dispense high viscosity liquid.

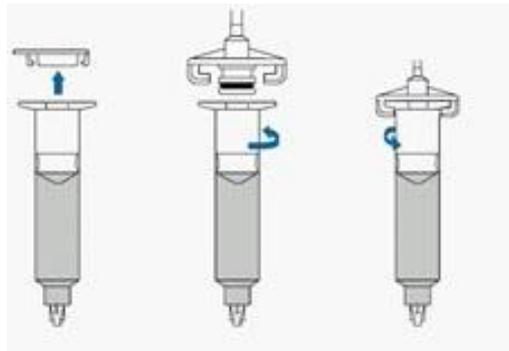
Principles

Drifton high precision dispenser series quote air pressure control liquid, Fluid dispensing through high-precision timing of the pressure pulse control, which could ensure that the correct amount of fluid is applied at every time, on every part, to every item Time is more precise quantitative also will be prospective more. Solenoid Valve higher response rate, dispensing speed will be soon

Drifton dispenser components: syringes, the Pistons, high-precision needle, adapter. High precision controller (timing, pressure), it is easy to operate, small volume. Only use a little electricity and pressure. Maximum pressure is 7bar; it can be applied to different viscosity of fluid materials, vacuum suction to prevent of liquid down flow.

Dispenser Hookup

1. Connect the air input hose to a plant air source. Set plant air supply within 80 to 100 psi.
2. Attach the air input hose coupling to the dispenser.
3. Plug in the polarized foot pedal connector. Connect the foot pedal to the back of the dispenser
4. Check the voltage label on the input voltage selector cartridge. Connect the power cord into the back of the dispenser. Connect the power cord into your local power source (AC110V-220V / 50Hz).
5. Attach the 30cc barrel refilled with test fluid, maximum 2/3 full
6. Using the correct Drifton piston insert the barrel. Place the piston down into the barrel.
7. Remove the end cap, connect to the adapter assembly. Twist clockwise to lock.



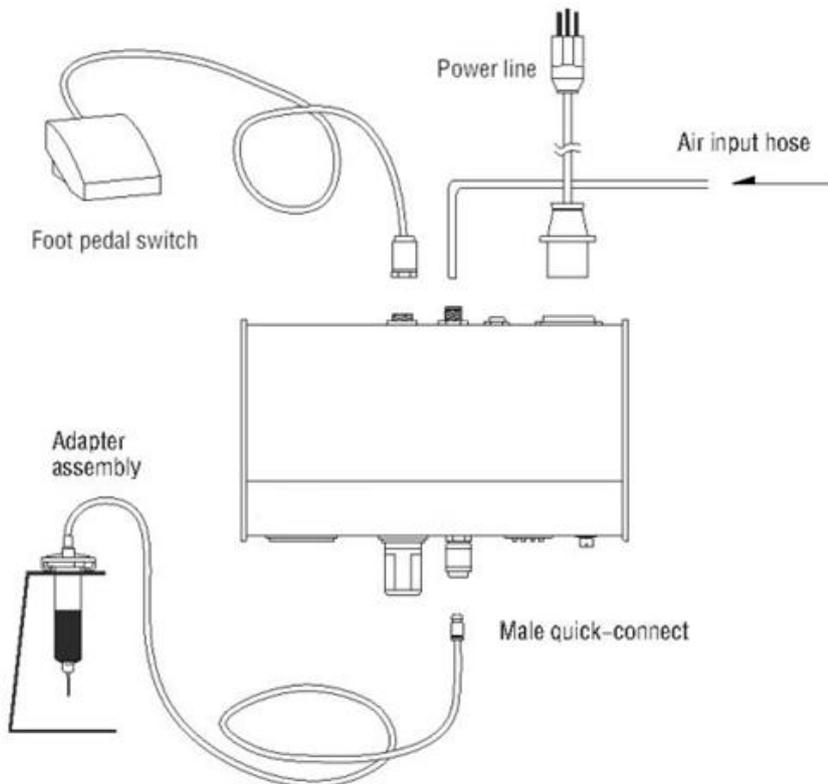
8. Push the black male quick-connect on the syringe barrel adapter assembly into the front of the dispenser
9. Remove the tip cap, replace it with an appropriate Drifton tip cap. Place the syringe barrel in the barrel holder.
10. Initial setup is now complete. At this point you are now ready to set up your dispensing flow rate and time to suit your application needs.
11. Note: Always use the lowest possible pressure and the largest possible tip size. The combination of the lowest possible output pressure + largest possible tip size + longest possible dispense duration = most consistent and accurate deposits.
12. During the initial testing, you will not use the vacuum control. Keep this control shut off (turned completely clockwise—do not force).

Drifton 2004-DE - Digital & Circling Dispenser

Drifton 2004-DE - Specifications

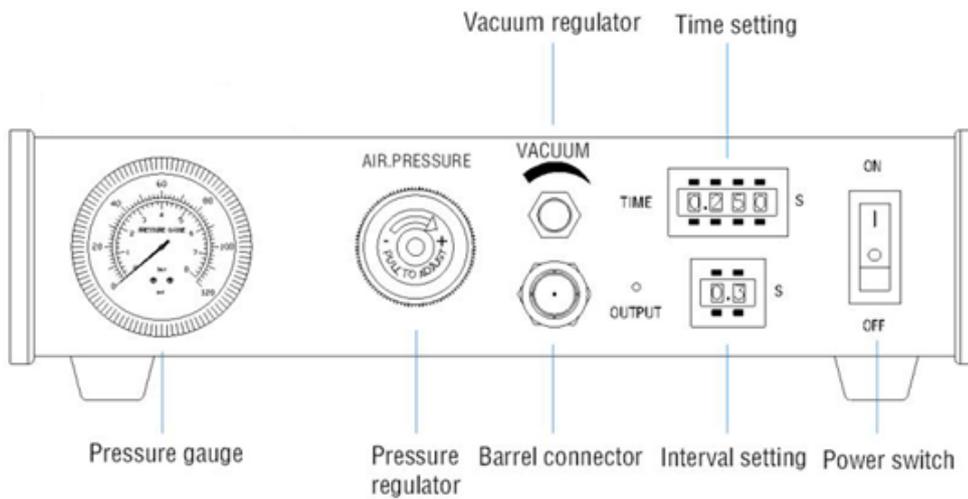
Dispensing time:	0.007S-9.999S
Cycling (interval) time:	0.1S-9.9S
Air Input:	7KgF/cm ²
Air Output:	0.1-7KgF/cm ²
Repeatability:	0.0005S
Min depot:	0.005ml
Work Frequency:	>600 times/minute
Input AC:	110V or 220V 50Hz
Internal Voltage:	24 VDC
Input Power Required:	< 15W
Weight:	< 3.5Kg
Cabinet Dimensions:	7×21×25.6cm
Approvals:	CE

Drifton 2004-DE - Connections drawing

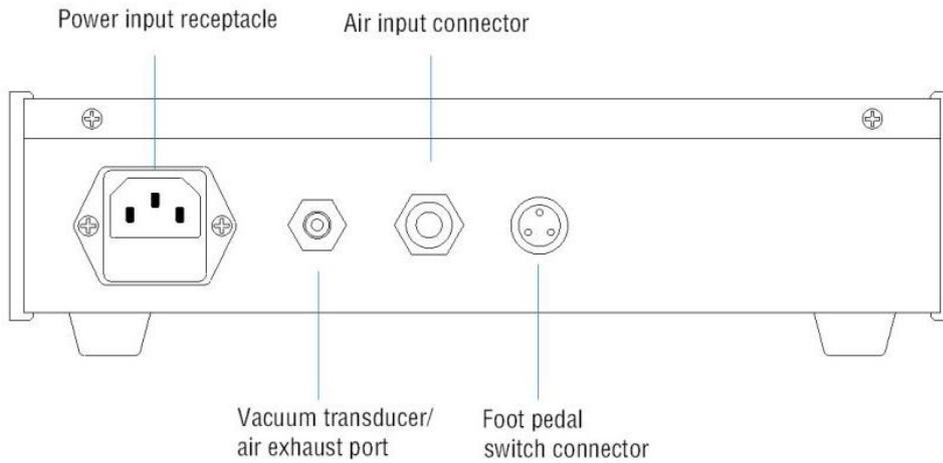


- ① Foot pedal switch
- ② Power line
- ③ Air input hose
- ④ Adapter assembly
- ⑤ Male quick-connect

Drifton 2004-DE - Controls Panel



- ① Pressure gauge
- ② Pressure regulator
- ③ Vacuum regulator
- ④ Barrel connector
- ⑤ Time setting
- ⑥ Interval setting
- ⑦ Power switch



- ① Power input receptacle
- ② Air input connect
- ③ Foot pedal switch/finger switch
- ④ Air exhaust port

Drifton 2004-DE - Setup for Testing

When you begin testing, the Power switch should be off.

The amount of material dispensed in each cycle depends on the combination of **air pressure, time of air pulse, viscosity of material and dispensing tip size.**

The first step is to remove the tip cap from the refilled barrel of test material. Replace it with a 14 gauge tapered dispensing tip. Press the tip on and twist clockwise to lock.

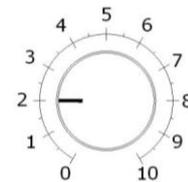
Second: Pull out air pressure regulator knob, until it "clicks" into the unlocked position. Turn clockwise to adjust the air pressure to 30 psi (2.1 bar) for the initial tests.

Always set the pressure desired by turning the air regulator knob clockwise. To reduce the pressure, turn the knob counterclockwise until the gauge reads a lower pressure than desired. Then increase and stop at desired pressure. Push knob in to lock.

Pressure regulator:

Turn clockwise – increase pressure

Turn counterclockwise – decrease pressure

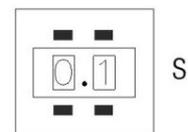


Third: Press power switch to turn on the dispenser.

Fourth: Set the dispensing time at "0.000S" and the cycling time at "0.0S". Step on the foot pedal switch and liquid will flow out. When you stop stepping on the foot pedal, it will stop dispensing glue.

Fifth: Set the time, adjusting range: 0.001~9.999 seconds and the cycling time at "0.0S"

Sixth: Set the dispensing time and the cycling time, step on the pedal switch until the entire product is finished.



0.1 seconds

Be sure barrel vacuum control is turned off. The vacuum volume should be "0" when testing.

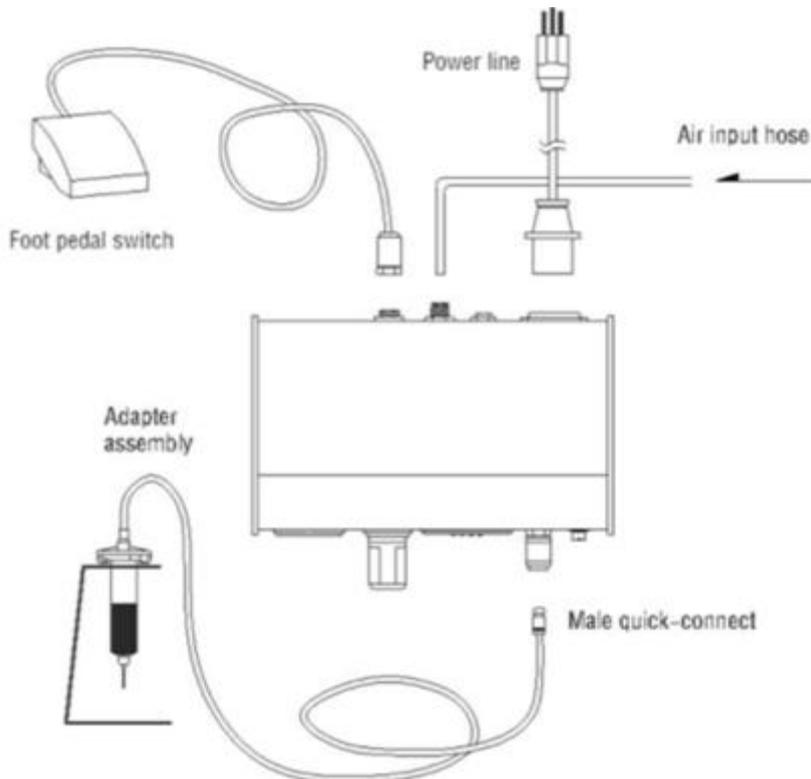
If you want to test vacuum suction, take some water in the barrel firstly and fasten the tip, then adjust the vacuum regulator. When you turn it counterclockwise, you will find that the water doesn't drop. If the suction of vacuum is too big, the water will rise into the barrel.

Drifton 2004-DT - High Precision Digital Display Dispenser

Drifton 2004-DT - Specification

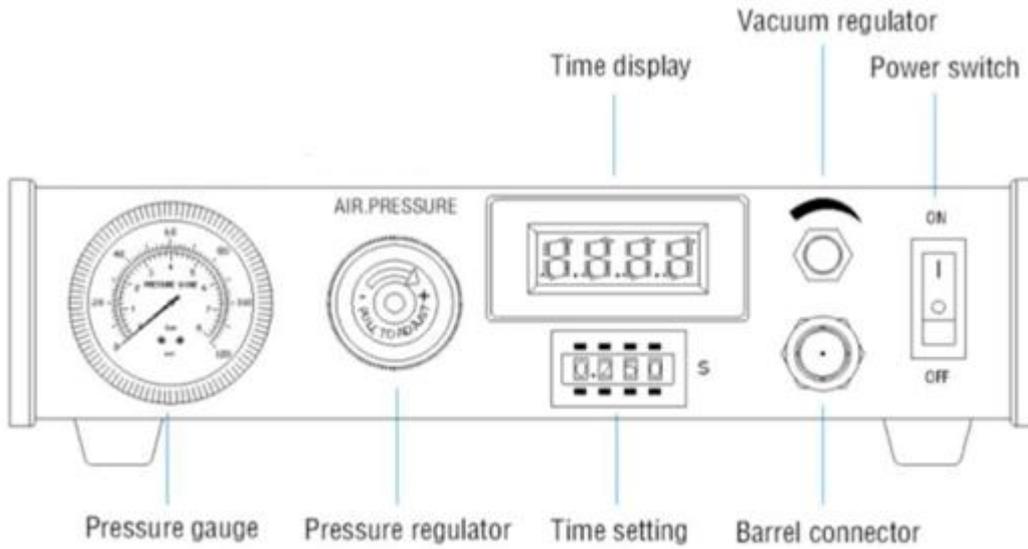
Time display:	Four Figures Led display
Dispensing time:	0.001S-9.999S, 0.01S-99.99S
Air Input:	7bar (1bar =1.01972kgF/cm ² =14.5038psi)
Air Output:	0.1bar-7bar
Repeat tolerance:	0.00005S
Min deposit:	0.001ml
Speed:	> 600 time/minute
Input Voltage:	110V/220V±10% 50Hz
Power:	< 15W
Weight:	< 3.5Kg
Size:	7x21x24.6cm
Standards:	CE approved

Drifton 2004-DT - Connections drawing

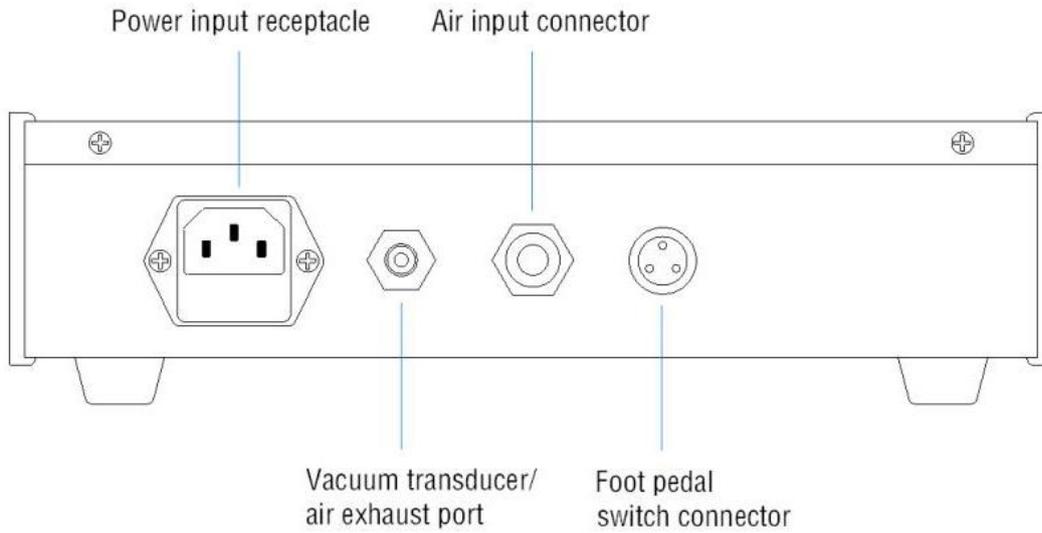


- ① Foot pedal switch
- ② Power line
- ③ Air input hose
- ④ Adapter assembly
- ⑤ Male quick-connect

Drifton 2004-DT - Controls Panel



- ① Pressure gauge
- ② Pressure regulator
- ③ Time display
- ④ Time setting
- ⑤ Vacuum regulator
- ⑥ barrel connector
- ⑦ power switch



- ① Power input receptacle
- ② Air input connect
- ③ Foot pedal switch/finger switch
- ④ Air exhaust port

Drifton 2004-DT - Setup for Testing

When you begin testing, please Power switch should be off.

The amount of material dispensed each cycle depends on the combination of **air pressure, time of air pulse, viscosity of material and dispensing tip size.**

The first step is to remove the tip cap from the refilled barrel of test material, replace it with a 14 gauge tapered dispensing tip. Press the tip on and twist clockwise to lock.

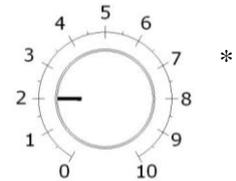
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Always set the pressure desired by turning the air regulator knob clockwise. To reduce the pressure, turn the knob counterclockwise until the gauge reads a lower pressure than desired. Then increase and stop at desired pressure. Push knob in to lock.

Pressure regulator:

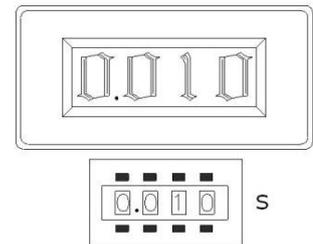
Turn clockwise – increase pressure

Turn counterclockwise – decrease pressure



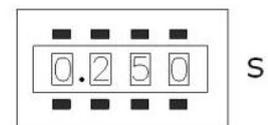
Third: Press power switch to turn on the dispenser.

Fourth: Then set the dispensing time at “0.000S” and the cycling time at “0.0S”. Step on the foot pedal switch and liquid will flow out. When you stop stepping on the foot pedal, it will stop dispensing glue. The time will display on the screen.



Fifth: Set the time. The set time is listed in the screen. Adjusting range: 0.001~9.999s, 0.01~99.99s.

Sixth: Teaching function: Set the dispensing time as “0.000S” and step on the pedal switch to dispense until the volume is suitable. You can find that the dispensing time of the test is displayed on the screen. Then you can use the time to dispense your products.



0.25 seconds

Be sure barrel vacuum control is turned off. The vacuum volume should be “0” when testing.

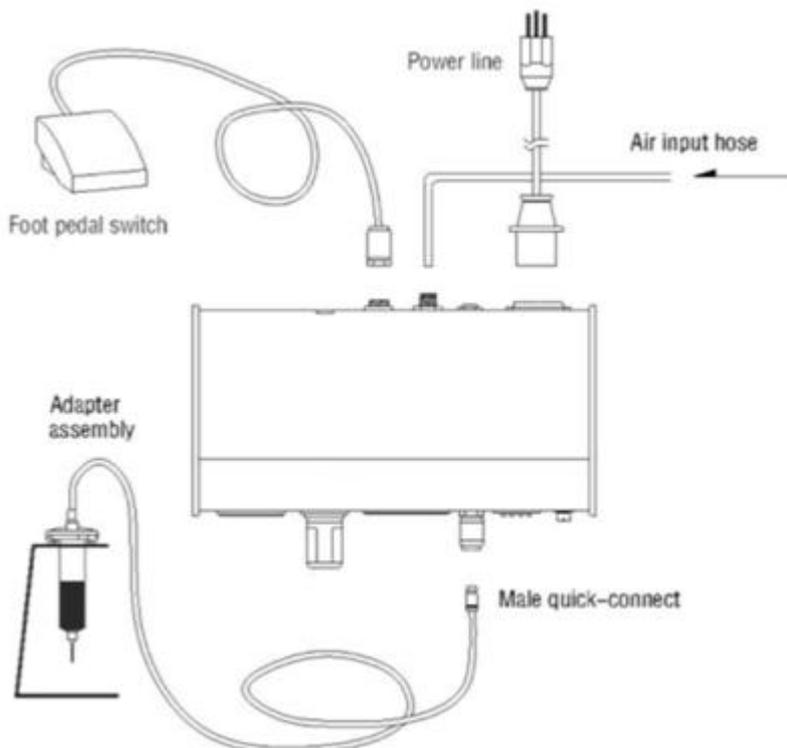
If you want to test vacuum suction, take some water in the barrel firstly and fasten the tip, then adjust the vacuum regulator. When you turn it counterclockwise, you will find that the water doesn't drop. If the suction of vacuum is too big, the water will rise into the barrel.

Drifton 2004-DB - High Precision Digital Display Cycling

Drifton 2004-DB - Specification

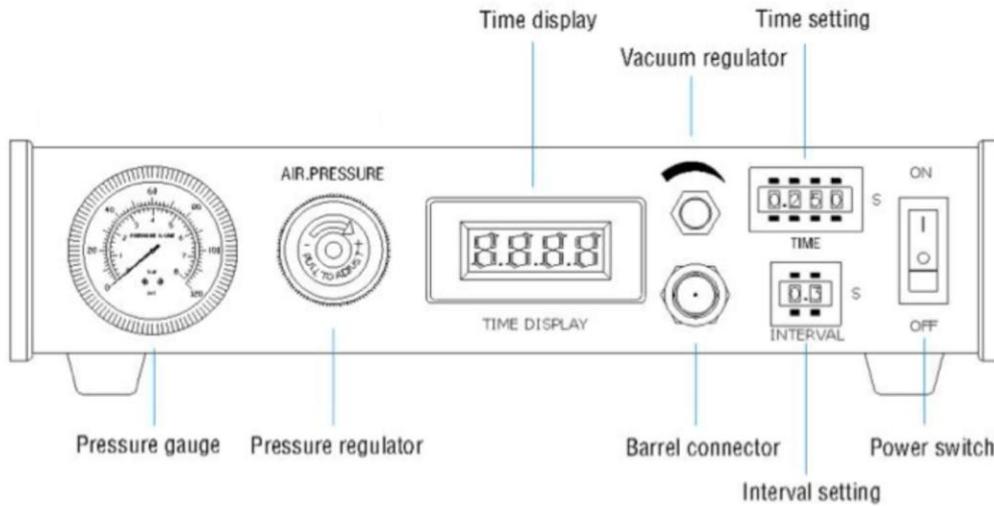
Time listing:	Four Led listing
Dispensing Time:	0.001-9.999S, 0.01-99.99S
Cycling (interval) time:	0.1-9.9S
Air Input:	7bar (1bar =1.01972kg/cm ² =14.5038psi)
Air Output:	0.1 - 7bar
Repeatability:	0.00005S
Min deposit:	0.001ml
Speed:	>600 Times/minute
Input Voltage:	AC 110/220V 50Hz
Power:	<15W
Weight:	<3.5Kg
Size:	7×21×28.1cm
Standards:	CE approved

Drifton 2004-DB - Connections drawing

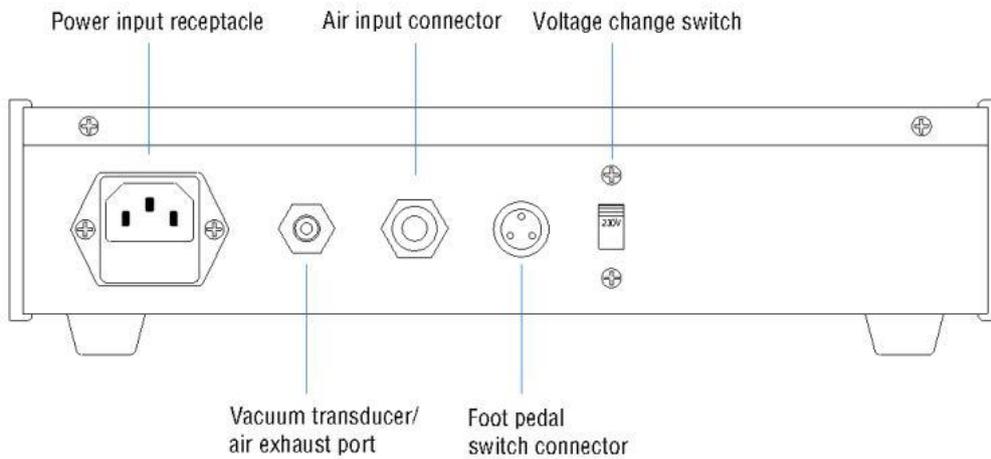


- ① Foot pedal switch
- ② Power line
- ③ Air input hose
- ④ Adapter assembly
- ⑤ Male quick-connect

Drifton 2004-DB - Controls Panel



- ① Pressure gauge
- ② Pressure regulator
- ③ Time display
- ④ Vacuum regulator
- ⑤ Barrel connector
- ⑥ Time setting
- ⑦ Interval setting
- ⑧ Power switch



- ① Power input receptacle
- ② Air input connect
- ③ Foot pedal switch/finger switch
- ④ Air exhaust port

Drifton 2004-DB - Setup for Testing

When you begin testing, the Power switch should be off.

The amount of material dispensed in each cycle depends on the combination of **air pressure, time of air pulse, viscosity of material and dispensing tip size.**

The first step is to remove the tip cap from the refilled barrel of test material. Replace it with a 14 gauge tapered dispensing tip. Press the tip on and twist clockwise to lock.

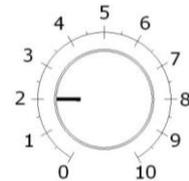
Second: Pull out air pressure regulator knob, until it "clicks" into the unlocked position. Turn clockwise to adjust the air pressure to 30 psi (2.1 bar) for the initial tests.

Always set the pressure desired by turning the air regulator knob clockwise. To reduce the pressure, turn the knob counterclockwise until the gauge reads a lower pressure than desired. Then increase and stop at desired pressure. Push knob in to lock.

Pressure regulator:

Turn clockwise – increase pressure

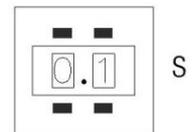
Turn counterclockwise – decrease pressure



Third: Press power switch to turn on the dispenser.

Fourth: Set the dispensing time at “0.000S” and the cycling time at “0.0S”. Step on the foot pedal switch and liquid will flow out. When you stop stepping on the foot pedal, it will stop dispensing glue.

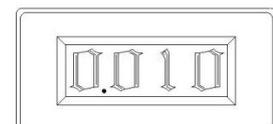
Fifth: Set the time. Adjusting range: 0.001~9.999 seconds and the cycling time at “0.0S”.



Sixth: Set the dispensing time and the cycling time. Step on the pedal switch until all the product is finished.

0.1 seconds

Seventh: Teaching function: Set the dispensing time as “0.000S” and step on the pedal switch to dispense until the volume is suitable. You can find that the dispensing time of the test is displayed on the screen. Then you can use the time to dispense your products.



Be sure barrel vacuum control is turned off. The vacuum volume should be “0” when testing.

If you want to test vacuum suction, take some water in the barrel firstly and fasten the tip, then adjust the vacuum regulator. When you turn it counterclockwise, you will find that the water doesn't drop. If the suction of vacuum is too big, the water will rise into the barrel.

Application Art

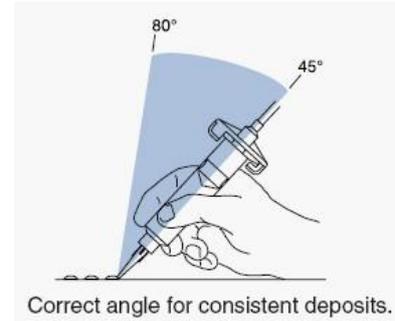
1. Making Timed Deposits of Medium to Thick Fluids

You are now ready to test the prefilled, nontoxic test fluid. This material is representative of thick, non-leveling fluids like sealants, pastes or greases.

Check your initial settings:

- a) Adjusting Air gauge
- b) Timer setting
- c) Tapered tip is on the test barrel
- d) Set on “Man” mode

Holding the barrel as shown, rest the tip on a piece of paper. Press the foot pedal until the tip fills and some fluid is pushed out onto the paper. Repeat this whenever you change to a new tip.

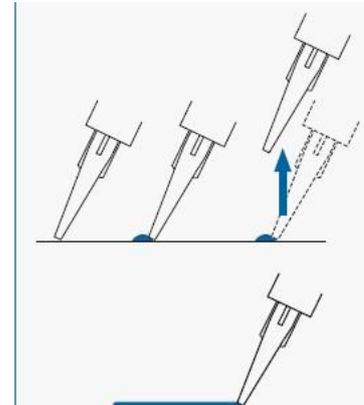


2. Changing Deposit Size, Drawing Stripes

The dot size is determined by the tip diameter, the output air pressure setting and the pulse time. For large dots, use a large tip, higher pressure and more time. Normally, you want to use as short a time pulse as possible. To increase the dot size, slightly increase output air pressure, or increase tip size, or both.

To make stripes, press the “Man” mode. With the tip in contact with the test sheet, press and hold down the foot pedal while making a bead or stripe.

Remember: Always bring the tip into contact with the work surface at the illustrated angle, after the tip is in position, press the foot pedal release pedal and remove tip by lifting it straight up.



3. Setting the deposit size

Test different time and air pressure, to get the wanted dispensing volumes.

- For medium to high viscosity glue, use a tapered needle.
- For low viscosity glue, use a metal needle with a smaller gauge.
- For micro dispensing volumes, select low pressure (0~30psi).

Note:

First select the suitable pressure, from low to high, adjusting slowly.

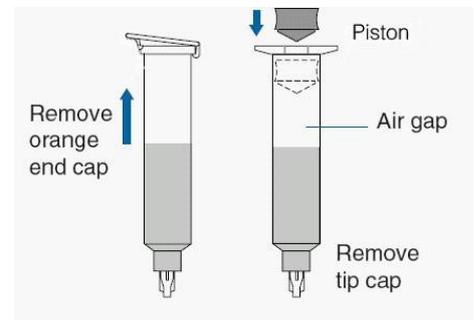
1. Depending on the viscosity, adjust the Air pressure:
 - Aqueous glue – Pressure 0.1 ~ 1.0 bar (1.5~15 psi)
 - Low viscosity glue – Pressure 1.5~2.0 bar(22~30 psi)
 - Medium viscosity glue – Pressure 2.0~3.0 bar(30~45 psi)
 - High viscosity glue – Pressure 3.0~5.0 bar(45~75 psi)
2. For low viscosity glue you should open the vacuum switch to prevent dripping.
3. Remove the air in the glue and piston.

4. How to Use the Vacuum Control

The vacuum control allows low viscosity liquids, even water, to be consistently dispensed without dripping between cycles. The vacuum exerts a negative pressure on the liquid in the barrel and prevents dripping.

For these tests, you will use the test barrel with the clear fluid.

1. While holding the barrel upright in one hand, remove the orange end cap and insert the piston. Allow an air gap as shown.
2. Attach the barrel to the adapter. Snap the safety clip tightly closed to prevent any dripping or bubbling. Remove the tip cap and attach the tip.
3. Set air pressure and the time.
4. Press the “Man” mode.
5. With the barrel pointing downward over a container, unsnap the safety clip. Then press the foot pedal to fill the tip.
6. If a drop begins to form at the end of the tip, slowly turn the vacuum control knob counterclockwise to stop the drop from growing. Wipe the tip and adjust vacuum as necessary. Normally, only 1 to 2 psi of vacuum pressure is necessary.
7. Press the “Auto” button to return to the preset dispenses time.
8. Take the barrel and place the tip on the test sheet. Press the foot pedal. Check the dot size. Increase or decrease by adjusting pressure or time.



If you choose not to use the piston, please follow these instructions carefully:

1. While holding the barrel upright in one hand, twist on an orange tip cap. Using the small funnel, fill about 2/3 full with your fluid.
2. Open the safety clip and attach the barrel to the adapter.
3. Close the safety clip as tight as possible.
4. Increase vacuum by turning vacuum control knob counterclockwise and set to 1.5 on the vacuum pressure gauge.
5. Then, without tipping the barrel upside down, remove the tip cap and attach the 25 gauge (red) tip.
6. Open the safety clip. Your material may begin to bubble. Reduce vacuum by turning vacuum control knob clockwise.
7. If a drop begins to form at the end of the tip, slowly turn the vacuum control knob counterclockwise to stop the drop from growing. Wipe the tip and adjust vacuum as necessary.

Now the fluid is in proper balance. It does not bubble or drip.

Repeat tests as before, keeping the air pressure low and adjusting the time for different deposit sizes. Contact Drifton service if you have any questions.

Two things to remember (if you do not use the piston. when dispensing thin fluid)

1. Do not tip the barrel upside down or lay flat, this will cause the liquid to run into the dispenser.
2. When changing tips or attaching a tip cap, snap the safety clip completely closed to prevent any dripping or bubbling.

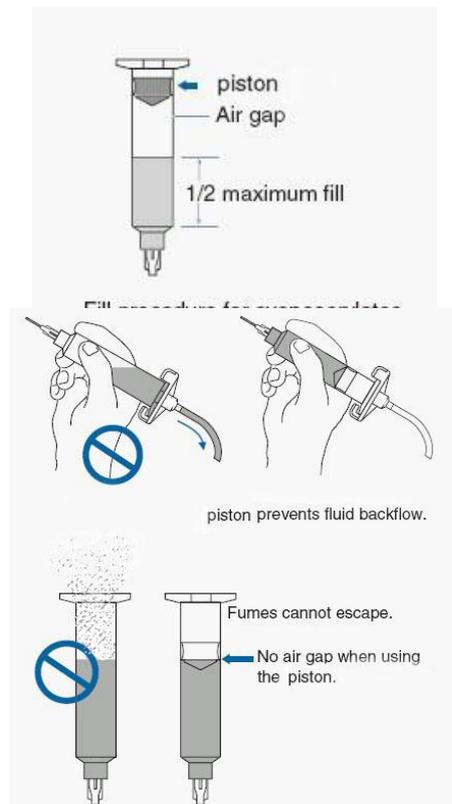
5. Piston function

The pistons make barrel filling easier. As you load the fluid in, air is trapped in the bottom and throughout the fluid. Simply insert a piston and gently press down on the fluid as far as possible. This action forces out most of the air and results in consistent deposits.

- Piston prevents fluids backflow
- No air gap when using the piston

Using piston has several advantages

1. Vacuum adjustment is much less sensitive.
2. The piston prevents fumes from the fluid being exhausted into the work environment.
3. The piston prevents fluid backflow into the dispenser if the barrel is inadvertently turned upside down.
4. Using the piston makes it easy and safe to change tips without dripping.



If you dispense high viscosity fluids, several problems may occur:

First, the repetitive air cycles can bore tunnels through non-leveling fluids, causing spitting and inconsistent deposits.

Second, thick fluids contain trapped air that leads to drooling and oozing.

These problems are eliminated by using the piston. That's because the white pistons prevent tunneling by providing a barrier to the pulsed-air cycles, and prevent oozing by responding to the pressure of trapped air with a slight suck-back movement after the dispense cycle.

Note:

For best results, we strongly recommend that you use a piston as part of your dispensing system.

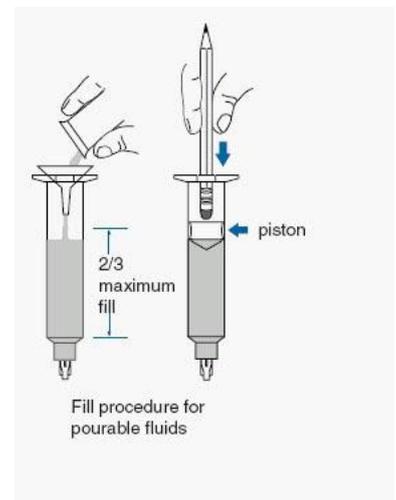
6. Filling the Syringe Barrel

Caution: Do not completely fill syringe barrels. The optimum fill is a maximum $2/3$ of the barrel capacity and $1/2$ of the barrel capacity when using the Drifton blue LV Barrier piston.

If the fluid you are dispensing is procurable, take the syringe barrel, twist on a tip cap and pour your fluid in.

Insert a white piston and carefully press down until it contacts the fluid. The syringe barrel is now ready for use.

If your fluid is thick or non-leveling, you can spoon it into the syringe barrel with a spatula.



Suggestions on Settings

1. Use Drifton pistons to make barrel loading, dispensing and handling cleaner, safer and more accurate.
Caution: If you dispense watery fluids and choose not to use Drifton pistons, do not increase vacuum pressure rapidly and do not tip the barrel. Vacuum may pull fluid into the adapter hose, or if the syringe barrel is tipped, fluid may flow back into the dispenser.
2. Always use new syringe barrels and tips. Carefully dispose of after use. This procedure ensures maximum cleanliness, prevents contamination and provides proper safety.
3. To ensure smooth fluid flow and to make consistent deposits, keep the dispense tip at a 45° angle to the work surface.
4. To reduce air pressure, turn the knob counterclockwise until the display reads at a lower-than – needed pressure setting. Then turn clockwise to increase pressure until you reach the correct setting.
5. Avoid high pressure settings with very small deposit settings. The ideal setup matches air pressure and tip size to create a “workable” flow rate – no splashing, but not too slow either.
6. With any fluid, always give the air pressure time to do its job. Moderate time and pressure provides the best results since dispensing pressure remains at its peak for a longer period of time.

Helpful Hints

1. There are three core variables to the dispenser: dispense time, pressure and vacuum. Adjust just one of these at a time, in small increments, to achieve the correct deposit.
2. Another variable is tip size. Choose the right tip for the deposit type. Remember, smaller tips require more pressure and more dispense time. Try different tips without changing the dispense time or pressure settings and observe the results.
3. Tapered tips reduce the amount of air pressure needed to dispense thick materials. They also help prevent drooling at the end of a dispense cycle.
4. Do not completely fill the syringe barrel. For most fluids, optimum fill is a maximum 2/3 of the barrel capacity. For cyanoacrylates or watery fluids, optimum fill is 1/2 of the barrel capacity.

Troubleshooting Guide

A Drifton Customer Service or Technical Services representative is always available to assist you with any question you may have about your Dispensing System. Please feel free to call or email us at the addresses on the front cover of this manual book.

Trouble	Solution
No fluid being dispensed	Check the power supply connection and DC power supply to the unit.
	Check the main air supply and primary regulator.
	Check to make sure that the main air supply is connected to the back of the unit and has not come loose.
	Check to make sure that the regulator is turned off (fully counterclockwise)
	If dispensing high viscosity materials, try increasing output air pressure slightly.
	Vacuum level is set to high.
	Barrel adapter safety clip may be clamped shut.
Inconsistent dispense output	Check the dispensing tip, barrel and material for possible contamination or clogs.
	Note: Dispensing System Components are disposable. Do not attempt to reuse.
	Check for air supply pressure fluctuation.
	Air bubbles in the fluid path and entrapped air within the fluid may cause inconsistency. For best dispensing results, remove all entrapped air before dispensing.
	Vacuum level is set to high.
	Barrel adapter safety clip may be clamped shut.
Material suck-back	Always use an appropriate piston to prevent material from being drawn back into the dispenser.

Guarantee

Thanks you for selecting the Drifton high precision liquid dispenser.

Warranty

1. Warranty duration: 1 year from the date of purchasing (Doesn't include the free items and consumables).
2. Warranty cards should be filled and sealed by the sales agent.
3. Sales agent should perform the obligations of warranty and maintenance.

In no event shall any liability or obligation of Drifton arising from this warranty exceed the purchase price of the equipment. Before using, user shall determine the suitability of the product for its intended use, and user assumes all risk and liability whatsoever in connection therewith.

Drifton A/S makes no warranty whatsoever of merchantability or fitness for a particular purpose. In no event shall be liable for incidental or consequential damages

The following situations are not in the scope of warranty; users should pay the maintenance costs:

1. The mistake of operation or transport causes damage to the machine by the user;
2. Replace the components or repair the machine by the repairer which is not designated by the manufacturer or sales agent.
3. The machine is damaged by lightning, flood, fires and other natural disasters;
4. Beyond the warranty time;
5. The machine is damaged by the stability of voltage;
6. Users connect the dispenser with the inferior power devices.

Maintain Card			
Item		NO:	
Company name		Invoice NO:	
Sales unit	(stamp)	Date	
Repair records			
Date	Detail of the problem	checker	Note

Note: The information contained in this manual is subject to change without notice.